APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/447,312	11/22/1999	SCOTT D. BLANCHARD	IRI03844	3661

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MOTOROLA, INC.
CORPORATE LAW DEPARTMENT - #56-238
3102 NORTH 56TH STREET
PHOENIX, AZ 85018

EXAMINER
VAUGHAN, MICHAEL R

ART UNIT	PAPER NUMBER
2131	

DATE MAILED: 08/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/447,312	BLANCHARD ET AL.
	Examiner	Art Unit
	Michael R Vaughan	2131

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____ .

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☐ Claim(s) _____ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-27</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>22 November 1999</u> is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2-3</u> .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Detailed Action

Claims 1-27 have been examined.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on June 12, 2000 and February 12, 2002

was filed. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the

information disclosure statement is being considered by the examiner.

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference

character "610 in Figure 6" has been used to designate Masks A-D. A proposed drawing correction or

corrected drawings are required in reply to the Office action to avoid abandonment of the application.

The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include

the following reference sign(s) not mentioned in the description: 230, 414, 522, 524, 526, 718, and 1080.

A proposed drawing correction, corrected drawings, or amendment to the specification to add the

reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the

application. The objection to the drawings will not be held in abeyance.

The drawings are objected to because references 506 and 508 have been mislabeled and are

therefore inconsistent with the description found in the specification. A proposed drawing correction or

corrected drawings are required in reply to the Office action to avoid abandonment of the application.

The objection to the drawings will not be held in abeyance.

See the Notice of Draftsperson's Patent Drawing Review (PTO 948) for other objections to the

drawings.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for

the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1, 3, 6, 16, 17, 18, 23, and 24 are rejected under 35 U.S.C. 102(a) as being unpatentable

by Takamoto et al (EP 762705 A2).

As per claim 1, Takamoto et al teaches a method of adding packet ordering information to data

packets by adding tags (masks) to the packets that let the receiver know the order in which the packets

are to be processed (column 5, line 4). Takamoto et al also teach applying error detection to the data

packet (column 8, line 30).

As per claim 3, Takamoto et al teaches that the tags (masks) are constructed in a manner in

which the receiver can discern how the packets are to be processed in the advent that are received out of

order (column 5, line 4).

As per claim 6, the art in which Takamoto et al cites is and can be implemented in a network

(such as a packet switched network that offers very little quality of service) that is expected to have

delays. It is inherent that Takamoto et al's method will therefore have a sufficient number of tags so that

the receiver can discern the proper order of the packets.

As per claim 16, Takamoto et al teaches:

packet receiving program (packet receiver) (Fig.1);

control memory (mask store) (Fig. 1);

tag removing program (unmasking device) (Fig. 1).

It is inherent that Takamoto et al's teaches the use of an error detection device because the receiving

device is capable of detecting the occurrence of an error (column 8, line 30).

As per claim 17, Takamoto et al teaches of a controller to handle the tasks of the devices in claim

16 (column 7, line 2).

As per claim 18, Takamoto et al teaches tags (masks) that represent the pre-division position of

packets that are transmitted sequentially (column 5, lines 4).

As per claim 23, Takamoto et al teaches:

Packet transmission program (packet formatter) (column 7, line 30);

Control memory (mask store) (Fig. 1);

Tag adding program (masking device) (column 7, line 33).

It is inherent that Takamoto et al's teaches the use of an error forwarding device because the receiving

device is capable of detecting the occurrence of an error (column 8, line 30).

As per claim 24, Takamoto et al teachings are inherently describing a data packet formatter

(column 7, lines 33).

Claims 11, 12, and 14 are rejected under 35 U.S.C. 102(a) as being unpatentable by Weiss (USP

4,754,482).

As per claims 11, 12, and 14 Weiss teaches a CRC list that is used to hold incoming data packets

that are received out of order (column 12, lines 49-65). The CRC is computed from the sequence number

or counter (mask) of the receiver, which is synchronized to the transmitter (column 15, lines 15-25).

These numbers are used to preserve the order of the received packets. Weiss teaches the use of a

buffer or list to hold these numbers as they are received. It is notoriously well known in the art how to

search, traverse, add, and remove entries from buffers. It is also well known in the art to use pointers and

temporary pointers to make comparison when searching in a buffer. Weiss also teaches to check the

received packets for errors via the CRC (column 15, line 15).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set
forth in section 102 of this title, if the differences between the subject matter sought to be patented and
the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2, 4, 5, 19, 20, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takamoto et al in view of Weiss (USP 4,754,482).

As per claim 2, Takamoto et al is silent in disclosing that the tags (masks) are XOR'ed to the data packets. Weiss does teach the XOR'ing of an encryption pattern (cryptographic key) and data packets (column 7, line 17). XOR operations are easy to reverse and easy to compute. This makes XOR an excellent way to mask bits while encrypting the data. Masking of bits is well known in the art. In view of this, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the teachings of Weiss within the system of Takamoto et al because it would allow one to XOR the masks (tags) to the data packet.

As per claim 4, the examiner supplies the same rationale for motivation as recited in the rejection of claim 2.

As per claim 5, Takamoto el al is silent in disclosing the encrypting of data packets prior to applying error detection. Weiss does teach the encrypting of data packets prior to error detection (column 5, line 2). Encrypting data is well known in the art. The motivation is to add security to the data. In view of this, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the teachings of Weiss within the system of Takamoto et al because it would allow encrypting the data packets.

As per claim 19, Takamoto et al is silent in disclosing of a key generator that is used to decrypt encrypted packets. Weiss teaches a key generator used to supply keys to decrypt encrypted packets (column 8, line 27). As cited in the rejection of claim 2, encrypting the data is highly desirable. The motivation is obvious. The keys are needed to remove the masks that encrypted the data. The key generator is a means of undoing the encryption process, which is motivated by the desire to increase the security of the data. In view of this, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the teachings of Weiss within the system of Takamoto et al because it would allow one to use a key generator to generate keys to decrypt encrypted packets.

As per claim 20, Takamoto et al is silent in disclosing the reuse of tags (masks). The reuse of masks would be useful and efficient. Weiss teaches the reuse of sequence numbers (masks) whereby when an error has occurred they are resynchronized (column 6, line 57). This obviously means the same numbers are used more than once. In view of this, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the teachings of Weiss within the system of Takamoto et al because it would allow one to reuse the masks by storing their values in memory (buffer). This prevents the device from having to generate new sets of masks (sequence numbers). The use of buffers is notoriously well known in the art.

As per claim 21, Takamoto et al is silent in disclosing a mask pointer that points to the most recently used mask. Keeping track of the current mask (sequence number) is important for maintaining the order of incoming packets. Weiss teaches this important matter of tracking the most recently received packet (column 6, line 35). Use of pointers is obvious to one of ordinary skill in the art. Therefore it would have been obvious to one of ordinary skill in the art at the time to employ the teachings of Weiss within the system of Takamoto et al because it would allow the invention to keep track of the current received packet. This can be done by using a pointer to the last mask or by updating a sequence number because both correspond to the last packet that came in and tell the device which packet is next to be received.

As per claim 22, Takamoto et al is silent in disclosing a decryptor. The examiner supplies the same rationale for motivation as recited in the rejection of claim 19. A decryptor is obviously needed to undo the encryption process in order to recover the data. This is notoriously well known in the art.

As per claim 26, Takamoto et al is silent in disclosing that the masking device comprises an encryptor and a key generator. The examiner supplies the same rationale for motivation as recited in the rejection of claim 19. Encryption is favorable and using a key generator and encryptor as taught by Weiss is an obvious way to one of ordinary skill in the art at the time of the invention to employ the teachings of Weiss within the system of Takamoto et al because it would allow one to encrypt data.

As per claim 27, Takamoto et al is silent in disclosing an encryptor coupled between a packet formatter and a forward error device. Weiss teaches the use of the encryptor prior a forward error device

(Fig. 3). Because encryption is desirable, the motivation to incorporate Weiss' teaching is obvious to one of ordinary skill in the art. Takamoto does teach a packet transmission program (packet formatter) (column 7, lines 30). In view of this, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the teachings of Weiss within the system of Takamoto et al because it would allow encrypting the packets once they are outputted from the packet formatter and send the encrypted data to the forward error device.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takamoto et al in view of Leopold (USP 5,528,693). Takamoto et al teaches the use of a packet formatter (column 7, lines 30). He is silent in disclosing that the packet formatter comprises a vocoder. Leopold does disclose of a packet formatter that uses a vocoder to digitize voice samples (column 3, line 16). In order to send voice data packets, vocoders are well known in the art to accomplish this. In view of this, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the teachings of Leopold within the system of Takamoto et al because it would allow the use of a vocoder to digitize voice samples in order to send them across a network as packets.

Claims 7, 8, 9, 10, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss in view of Gross et al (USP 5,761,431).

As per claim 7, Weiss teaches to find out the sequence number (mask) to thereby know if the received data is the next sequential packet (column 6, line 23). Weiss is silent in disclosing to delete older sequence numbers (masks). Gross et al teaches to remove stale data packets as they reach the top of a FIFO buffer (column 14, line 14). Discarding old data packets is necessary for receiver to remain ready to process the incoming data. In view of this, it would have been obvious to one or ordinary skill in the art at the time of the invention to employ the teachings of Gross et al within the system of Weiss because it would allow one to remove older packets (after determining with masks) from the list (buffer).

As per claim 8, Weiss teaches checking the incoming packet with a synchronous sequence number, checking for errors, and updating sequence numbers when no errors are found (column 6, lines 23-39).

As per claim 9, Weiss teaches to check the errors by comparing the calculated error code with an error code that the receiver calculates (column 6, line 30-35). It is inherent that the error code is a forward error code.

As per claim 10, Weiss teaches applying stored sets of CRC's to determine if the correct packet has been received. It is therefore inherent that order is trying to be preserved (column 12, lines 49-65). The CRC's in the list would then correspond to a particular sequence number (mask) (column 14, line 14). Weiss also teaches that if a packet is received in error that the receiving process can continue without losing synchronization. This implies that the erroneous packet is discarded (column 14, line 48).

As per claim 13, discarding the packet because a new packet is received is not explicitly taught by Weiss. Gross et al does refer to this occurrence as a stale packet and teaches to discard this packet (column 14, line 14). This would help the receiver and transmitter to remain synched with one another. It is also beneficial to drop late packets in some types of communication such as voice. In view of this, it would have been obvious to one of ordinary skill in the art to employ the teachings of Gross within the system of Weiss because it would allow one to discard packets, which are older than previously received packets.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss in view of Larsson et al (WO 9,949,695 A1.) Weiss is silent in disclosing the use of cryptographic keys in the masks. Larsson et al teaches the uses of synchronous vectors (A and B) that are long strings or keys at both the sender and receiver (FIG. 3). These vectors provide encrypting of the data when they are XOR'ed with the data. This increases the security of the system. In view of this, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the teachings of Larsson et al within the system of Weiss because it would allow the use of cryptographic keys in the masks.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tooley et al.   U.S. Patent 3,979,719

Raychaudhuri   U.S. Patent 4,745,599

Gross et al.   U.S. Patent 5,761,431

Buchholz   U.S. Patent 5,337,313

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael R Vaughan whose telephone number is 703-305-0354. The examiner can normally be reached on M-F 7-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 703-305-9648. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7239 for regular communications and 703-746-7239 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Michael R Vaughan
Examiner
Art Unit 2131

August 8, 2003

AYAZ SHEIKH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100